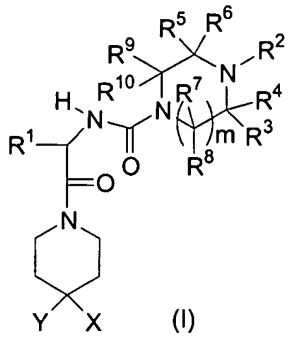
IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (original) A compound of structural formula I:



(I)

or a pharmaceutically acceptable salt thereof; wherein

m is 1 or 2;

each p is independently 0, 1, or 2;

each n is independently 0, 1, or 2;

R^1 is selected from the group consisting of

hydrogen,

C_{1-8} alkyl,

$(CHR^{12})_n$-C_{3-6} cycloalkyl,

$(CHR^{12})_n$-O(CHR^{12})aryl,

$(CHR^{12})_n$-aryl, and

$(CHR^{12})_n$-heteroaryl;

in which aryl and heteroaryl are unsubstituted or substituted with one to three groups independently selected from R^{11}; and alkyl and cycloalkyl are unsubstituted or substituted with one to three groups independently selected from R^{11} and oxo;

R^3, R^4, R^5, R^6, R^7, R^8, R^9, and R^{10} are each independently selected from the group consisting of

hydrogen,

C_{1-8} alkyl,

$(CH_2)_n$-aryl,

$(CH_2)_nC_{3-6}$ cycloalkyl,
$(CH_2)_n$-heteroaryl, and
$(CH_2)_n$-heterocyclyl;

in which aryl and heteroaryl are unsubstituted or substituted with one to three groups independently selected from R^{11}; and alkyl, cycloalkyl, and heterocyclyl are unsubstituted or substituted with one to three groups independently selected from R^{11} and oxo;
or R^3 and R^5 and the carbon atoms to which they are attached form a 5- to 7-membered ring;
or R^3 and R^9 and the carbon atoms to which they are attached form a 5- to 7-membered ring;
or R^5 and R^7 and the carbon atoms to which they are attached form a 5- to 7-membered ring;
or R^7 and R^9 and the carbon atoms to which they are attached form a 5- to 7-membered ring;

R^2 is selected from the group consisting of
hydrogen,
C_{2-6} alkenyl,
C_{1-8} alkyl,
$(CH_2)_n$-aryl,
$(CH_2)_nC_{3-6}$ cycloalkyl,
$(CH_2)_n$-heteroaryl,
$(CH_2)_n$-heterocyclyl,
$(CH_2)_{1-2}OR^{12}$,
$(CH_2)_{1-2}CO_2R^{12}$,
$(CH_2)_{1-2}CONR^{12}R^{12}$,
$CH_2C{\equiv}CH$, and
CH_2CHF_2;

in which aryl and heteroaryl are unsubstituted or substituted with one to three groups independently selected from R^{11}; and alkyl, cycloalkyl, and heterocyclyl are unsubstituted or substituted with one to three groups independently selected from R^{11} and oxo;
or R^2 and R^3 and the carbonoms to which they are attached form a 5- to 7-membered ring;
or R^3 and R^4 and the carbon atom to which they are attached form a 3- to 6-membered spirocyclic ring;

R^{11} is selected from the group consisting of
hydrogen,
C_{1-6} alkyl,
$(CH_2)_n$-phenyl,

$(CH_2)_n$-naphthyl,
$(CH_2)_n$-heteroaryl,
$(CH_2)_n$-heterocyclyl,
$(CH_2)_nC_{3-7}$ cycloalkyl,
halogen,
OR^{12},
$(CH_2)_nN(R^{12})_2$,
$(CH_2)_nC{\equiv}N$,
$(CH_2)_nCO_2R^{12}$,
NO_2,
$(CH_2)_nNR^{12}SO_2R^{12}$,
$(CH_2)_nSO_2N(R^{12})_2$,
$(CH_2)_nS(O)_pR^{12}$,
$(CH_2)_nNR^{12}C(O)N(R^{12})_2$,
$(CH_2)_nC(O)N(R^{12})_2$,
$(CH_2)_nNR^{12}C(O)R^{12}$,
$(CH_2)_nNR^{12}CO_2R^{12}$,
$O(CH_2)_nC(O)N(R^{12})_2$,
CF_3,
CH_2CF_3,
OCF_3, and
OCH_2CF_3;

wherein phenyl, naphthyl, heteroaryl, cycloalkyl, and heterocyclyl are unsubstituted or substituted with one to three substituents independently selected from halogen, hydroxy, C_{1-4} alkyl, trifluoromethyl, and C_{1-4} alkoxy; and wherein any methylene (CH_2) carbon atom in R^{11} is unsubstituted or substituted with one to two groups independently selected from halogen, hydroxy, and C_{1-4} alkyl; or two substituents when on the same methylene (CH_2) carbon atom are taken together with the carbon atom to which they are attached to form a cyclopropyl group;

each R^{12} is independently selected from the group consisting of
hydrogen,
C_{1-8} alkyl,
$(CH_2)_n$-phenyl,
$(CH_2)_n$-naphthyl,

$(CH_2)_n$-heteroaryl, and

$(CH_2)_nC_{3-7}$ cycloalkyl;

wherein any methylene (CH_2) carbon atom in R^{12} is unsubstituted or substituted with one to two groups independently selected from halogen, hydroxy, and C_{1-4} alkyl; or two R^{12} groups together with the atom to which they are attached form a 5- to 8-membered mono- or bicyclic ring system optionally containing an additional heteroatom selected from O, S, and NC_{1-4} alkyl;

each R^{13} is independently selected from the group consisting of

hydrogen,

C_{1-8} alkyl,

$(CH_2)_n$-aryl,

$(CH_2)_n$-heteroaryl,

$(CH_2)_n$-heterocyclyl, and

$(CH_2)_nC_{3-7}$ cycloalkyl;

wherein alkyl, aryl, heteroaryl, heterocyclyl, and cycloalkyl are unsubstituted or substituted with one to three groups independently selected from halogen, hydroxy,
C_{1-3} alkoxy, C_{1-3} alkylthio, carboxy, C_{1-4} alkyloxycarbonyl, amino,
C_{1-4} alkylamino, and di(C 1-4 alkylamino);
or two R^{13} groups together with the atoms to which they are attached form a 5- to 8-membered mono- or bi-cyclic ring system optionally containing an additional heteroatom selected from O, S, NR^{12}, NBoc, and NCbz;

X is selected from the group consisting of

C_{1-8} alkyl,

$(CH_2)_nC_{3-8}$ cycloalkyl,

$(CH_2)_n$-phenyl,

$(CH_2)_n$-naphthyl,

$(CH_2)_n$-heteroaryl,

$(CH_2)_n$heterocyclyl,

$(CH_2)_nC{\equiv}N$,

$(CH_2)_nCON(R^{13}R^{13})$,

$(CH_2)_nCO_2R^{13}$,

$(CH_2)_nCOR^{13}$,

$(CH_2)_nNR^{13}C(O)R^{13}$,

$(CH_2)_nNR^{13}CO_2R^{13}$,
$(CH_2)_nNR^{13}C(O)N(R^{13})_2$,
$(CH_2)_nNR^{13}SO_2R^{13}$,
$(CH_2)_nS(O)_pR^{13}$,
$(CH_2)_nSO_2N(R^{13})(R^{13})$,
$(CH_2)_nOR^{13}$,
$(CH_2)_nOC(O)R^{13}$,
$(CH_2)_nOC(O)OR^{13}$,
$(CH_2)_nOC(O)N(R^{13})_2$,
$(CH_2)_nN(R^{13})(R^{13})$, and
$(CH_2)_nNR^{13}SO_2N(R^{13})(R^{13})$;

wherein phenyl, naphthyl, and heteroaryl are unsubstituted or substituted with one to three groups independently selected from R^{11}; alkyl, cycloalkyl, and heterocyclyl are unsubstituted or substituted with one to three groups independently selected from R^{11} and oxo; and wherein any methylene (CH_2) carbon atom in X is unsubstituted or substituted with one to two groups independently selected from halogen, hydroxy, and C_{1-4} alkyl; and

Y is selected from the group consisting of

hydrogen,
C_{1-8} alkyl,
C_{2-6} alkenyl,
$(CH_2)_nC_{3-8}$ cycloalkyl,
$(CH_2)_n$-phenyl,
$(CH_2)_n$-naphthyl,
$(CH_2)_n$-heteroaryl, and
$(CH_2)_n$-heterocyclyl;

wherein phenyl, naphthyl, and heteroaryl are unsubstituted or substituted with one to three groups independently selected from R^{11}; alkyl, cycloalkyl, and heterocyclyl are unsubstituted or substituted with one to three groups independently selected from R^{11} and oxo; and wherein any methylene (CH_2) carbon atom in Y is unsubstituted or substituted with one to two groups independently selected from halogen, hydroxy, and C_{1-4} alkyl.

2. (original) The compound of Claim 1 wherein R^1 is CHR^{12}-aryl, $CHR^{12}OCHR^{12}$-aryl, or CHR^{12}-heteroaryl wherein aryl and heteroaryl are unsubstituted or substituted with one to two groups independently selected from R^{11}.

3. (original) The compound of Claim 2 wherein R^1 is benzyl, unsubstituted or substituted with one or two groups independently selected from halogen, C_{1-4} alkyl, C_{1-4} alkoxy, CN, CF_3, and OCF_3.

4. (original) The compound of Claim 3 wherein R^1 is 4-chlorobenzyl; 4-fluorobenzyl; 3,4-difluorobenzyl; 3,5-difluorobenzyl; 2-cyano-4-fluorobenzyl; or 4-methoxybenzyl.

5. (original) The compound of Claim 1 wherein R^2 is selected from the group consisting of

hydrogen,
C_{1-8} alkyl,
CH_2-aryl,
CH_2-heteroaryl,
CH_2-heterocyclyl,
CH_2C_{3-6} cycloalkyl,
$CH_2CO_2R^{12}$,
$CH_2CONR^{12}R^{12}$,
CH_2OR^{12},
$CH_2C{\equiv}CH$, and
CH_2CHF_2;

wherein aryl and heteroaryl are unsubstituted or substituted with one to three groups independently selected from R^{11}; and alkyl, cycloalkyl, and heterocyclyl are unsubstituted or substituted with one to three groups independently selected from R^{11} and oxo.

6. (original) The compound of Claim 5 wherein R^2 is hydrogen or C_{1-4} alkyl.

7. (original) The compound of Claim 6 wherein R^2 is hydrogen.

8. (original) The compound of Claim 1 wherein X is selected from the group consisting of C_{1-6} alkyl, $(CH_2)_n$-phenyl, $(CH_2)_n$-naphthyl, $(CH_2)_n$-heteroaryl, $(CH_2)_n$-heterocyclyl,

$(CH_2)_nC(O)N(R^{13})(R^{13})$, $(CH_2)_nCO_2R^{13}$, $(CH_2)_nS(O)_pR^{13}$, $(CH_2)_nOR^{13}$, $(CH_2)_nNR^{13}C(O)R^{13}$, and $(CH_2)_nNR^{13}SO_2R^{13}$; wherein phenyl, naphthyl, and heteroaryl are unsubstituted or substituted with one to three groups independently selected from R^{11}; alkyl and heterocyclyl are unsubstituted or substituted with one to three groups independently selected from R^{11} and oxo; and the $(CH_2)_n$ group is unsubstituted or substituted with one to three groups independently selected from R^{12}, halogen, $S(O)_pR^{12}$, $N(R^{12})_2$, and OR^{12}.

9. (original) The compound of Claim 8 wherein X is selected from the group consisting of C_{1-6} alkyl, $(CH_2)_{0-1}$-phenyl, $(CH_2)_{0-1}$-heteroaryl, $(CH_2)_{0-1}$-heterocyclyl, $(CH_2)_{0-1}NHC(O)R^{13}$, $(CH_2)_{0-1}CO_2R^{13}$, and $(CH_2)_{0-1}C(O)N(R^{13})(R^{13})$; wherein phenyl and heteroaryl are unsubstituted or substituted with one to three groups independently selected from R^{11}; and alkyl and heterocyclyl are unsubstituted or substituted with one to three groups independently selected from R^{11} and oxo.

10. (original) The compound of Claim 9 wherein heteroaryl is selected from the group consisting of pyridyl, pyrazinyl, pyrimidinyl, triazolyl, tetrazolyl, thiadiazolyl, oxadiazolyl, pyrazolyl, and imidazolyl.

11. (original) The compound of Claim 1 wherein Y is C_{1-8} alkyl, $(CH_2)_nC_{3-7}$ cycloalkyl, $(CH_2)_n$-aryl, $(CH_2)_n$-heterocyclyl, or $(CH_2)_n$-heteroaryl; wherein aryl and heteroaryl are unsubstituted or substituted with one to three groups independently selected from R^{11}; and $(CH_2)_n$, alkyl, cycloalkyl, and heterocyclyl are unsubstituted or substituted with one to three groups independently selected from R^{11} and oxo.

12. (original) The compound of Claim 11 wherein Y is C_{3-6} cycloalkyl or C_{1-6} alkyl, wherein alkyl and cycloalkyl are unsubstituted or substituted with one to three groups independently selected from R^{11} and oxo.

13. (original) The compound of Claim 12 wherein Y is cyclohexyl or C_{1-6} alkyl, wherein the cyclohexyl and alkyl groups are unsubstituted or substituted with one to three groups independently selected from R^{11} and oxo.

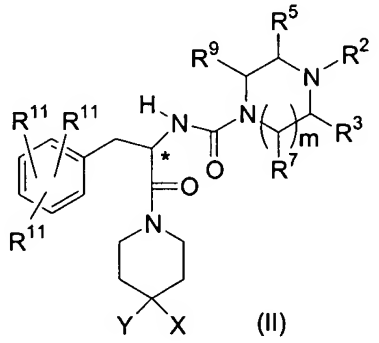
14. (original) The compound of Claim 1 wherein m is 1.

15. (original) The compound of Claim 1 wherein R^3, R^4, R^5, R^6, R^7, R^8, R^9, and R^{10} are each independently hydrogen or C_{1-4} alkyl; or R^3 and R^5 and the carbon atoms to which they are attached form a 5- to 7-membered ring; or R^3 and R^9 and the carbon atoms to which they are attached form a 5- to 7-membered ring.

16. (original) The compound of Claim 15 wherein R^3, R^4, R^5, and R^6 are each independently hydrogen or C_{1-4} alkyl, and R^7, R^8, R^9, and R^{10} are hydrogen.

17. (original) The compound of Claim 16 wherein R^3 and R^5 are each independently hydrogen or C_{1-4} alkyl; and R^4 and R^6 are hydrogen.

18. (original) The compound of Claim 1 of structural formula II:



(II)

wherein m is 1 or 2;

each R^{11} is independently selected from the group consisting of

hydrogen,

halogen,

cyano,

C_{1-4} alkyl,

C_{1-4} alkoxy,

C_{1-4} alkylthio,

trifluoromethyl, and

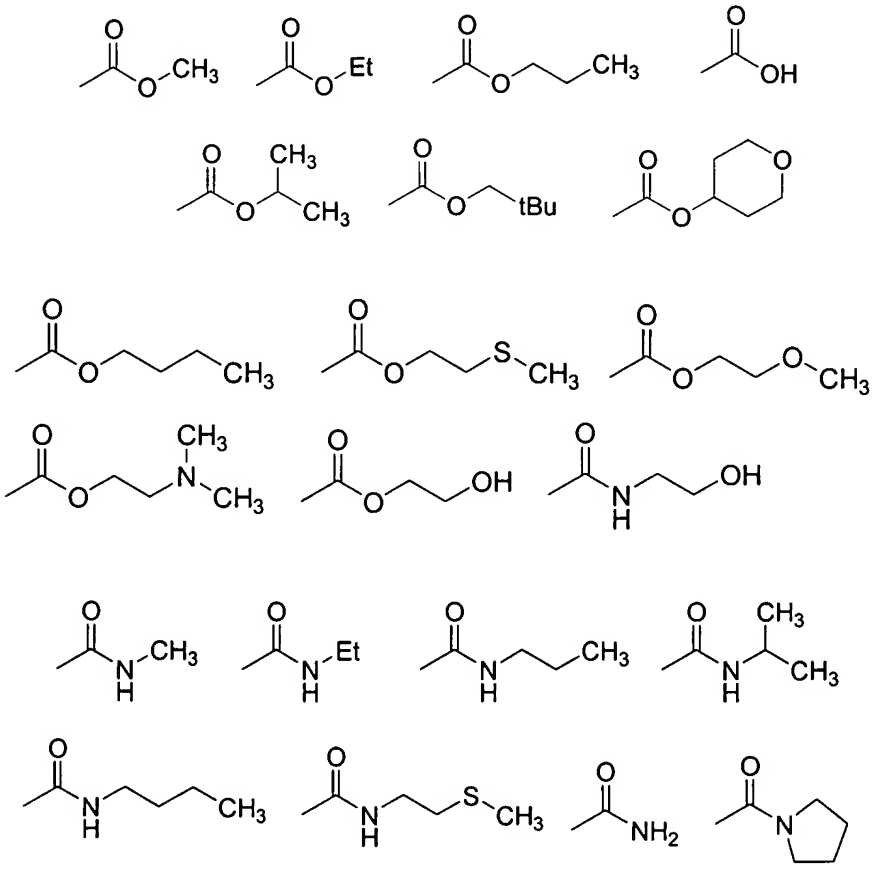
trifluoromethoxy;

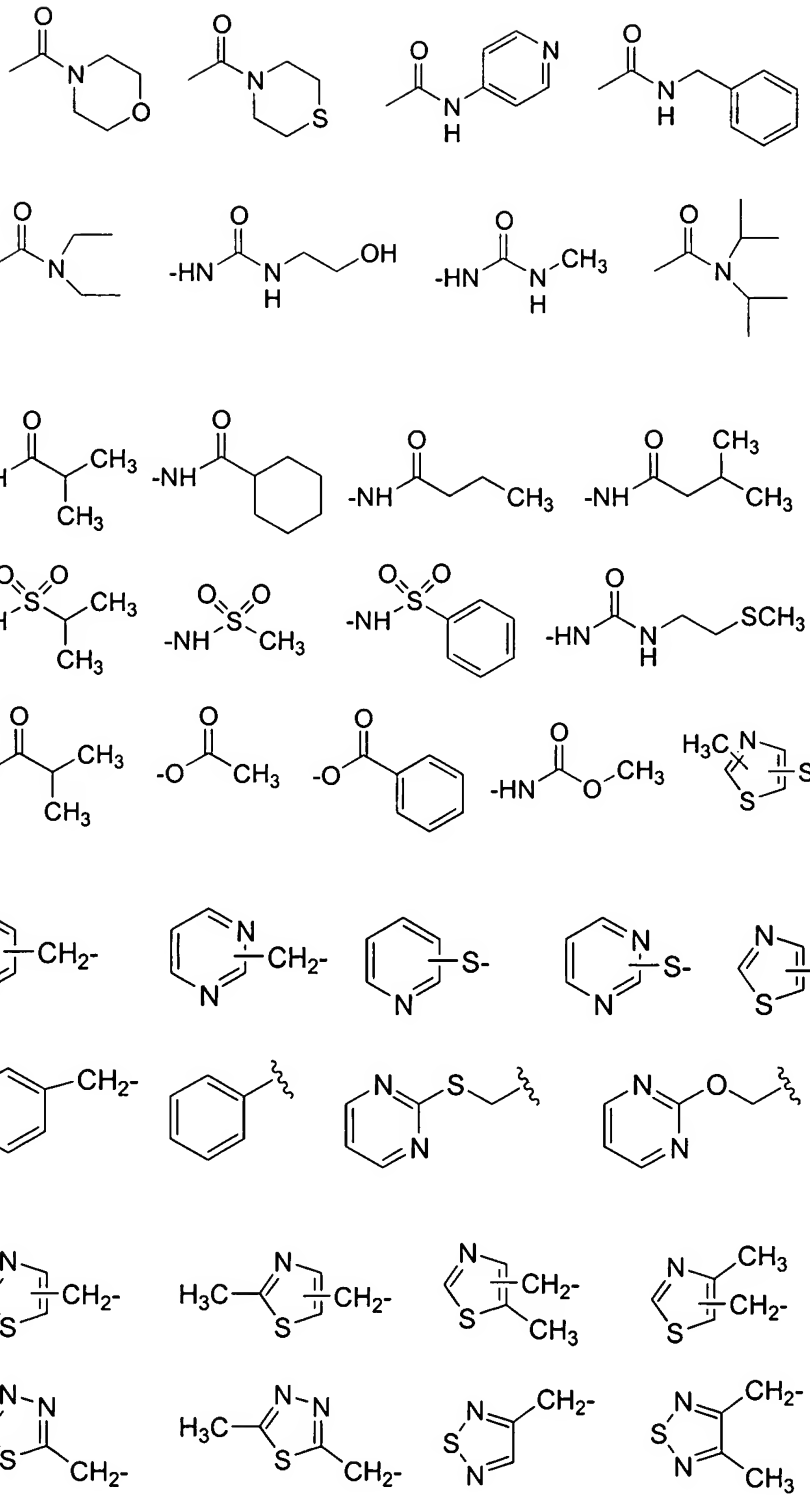
R^2 is hydrogen or C_{1-4} alkyl, unsubstituted or substituted with one to three groups independently selected from R^{11} and oxo;

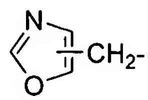
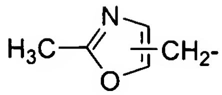
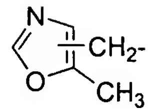
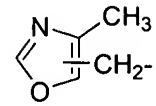
R^3, R^5, R^7, and R^9 are each independently hydrogen or C_{1-4} alkyl; or R^3 and R^5 and the carbon atoms to which they are attached form a 5- to 7-membered ring; or R^3 and R^9 and the carbon atoms to which they are attached form a 5- to 7-membered ring;

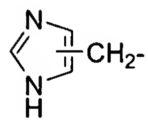
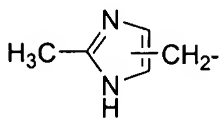
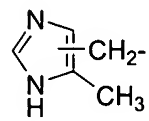
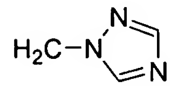
Y is C_{5-7} cycloalkyl or C_{1-6} alkyl, wherein alkyl and cycloalkyl are unsubstituted or substituted with one to three groups independently selected from R^{11} and oxo; and

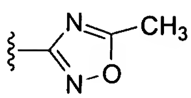
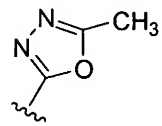
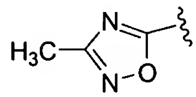
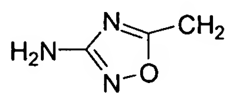
X is selected from the group consisting of

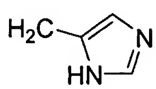
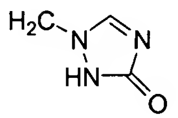
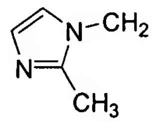
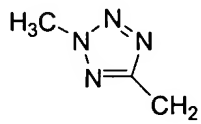


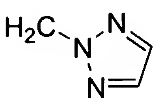
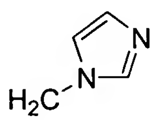
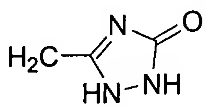
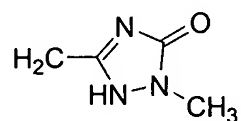


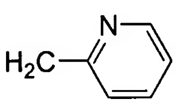
   

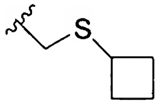
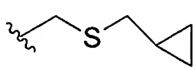
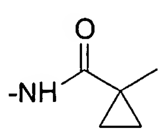
   

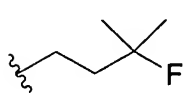
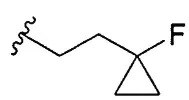
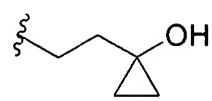
 $-NH-C(O)CH_3$ $-C(O)N(CH_3)_2$ -C(O)NH-t-Bu

-NHC(O)tBu; -C(O)NHCH(Et)$_2$; -C(O)NHCH$_2$tBu;

$-CH_2SCH(CH_3)_2$; $-CH_2S(O)CH(CH_3)_2$; $-CH_2S(O)_2CH(CH_3)_2$;

$-CH_2CH_2NEt_2$; $-CH_2SMe$; $-CH_2SEt$; $-CH_2SnPr$;

 ;  ;  ;

 ;  ;  ;

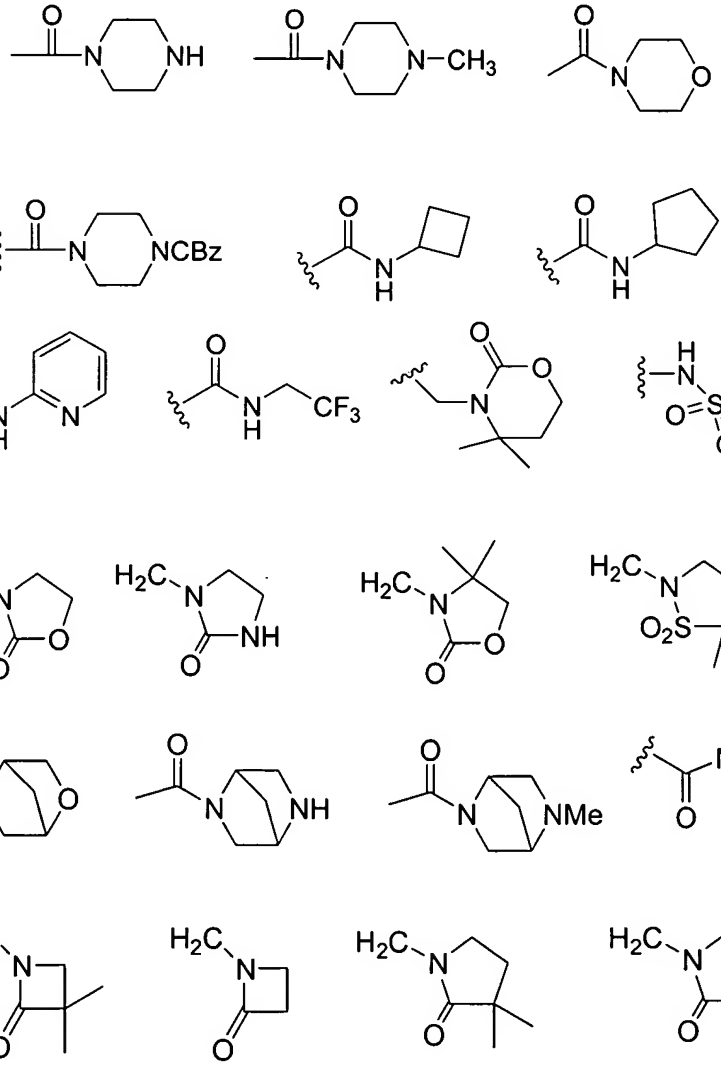
$-C(O)NHCH_2CH_2N(CH_3)_2$; $C(O)CH(CH_3)_2$; $-CH_2NHCOtBu$;

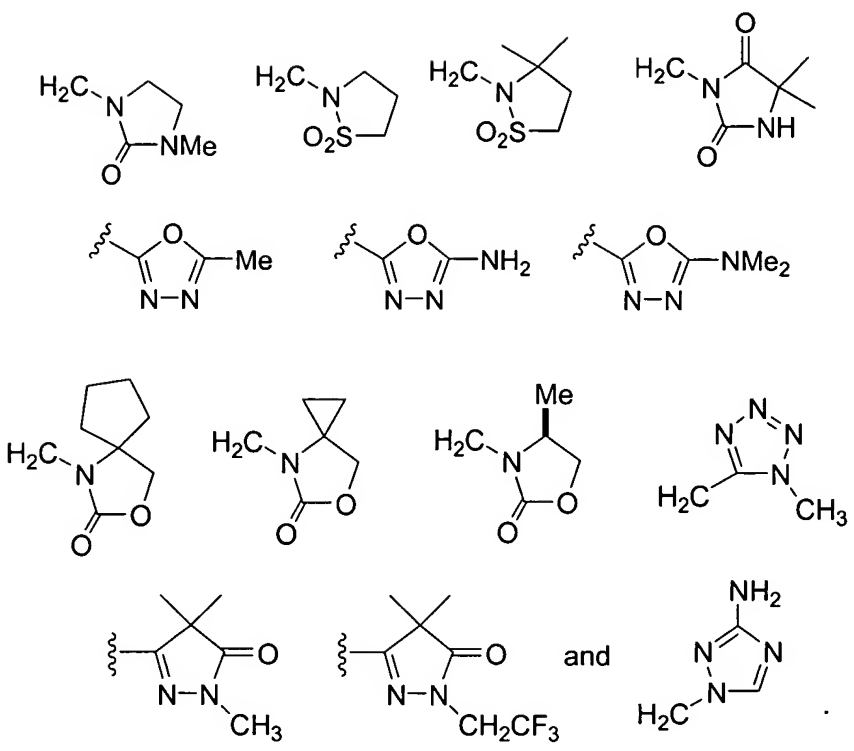
$-CH_2OC(O)NMe_2$; $-CH_2C(O)NEt_2$; $-CH_2OC(Me)_2CO_2H$;

$-C(O)NHC(Me)_2CO_2Me$; $-C(O)NHC(Me)_2CO_2H$;

$-CH_2N(CH_3)COtBu$; $-CH_2N(iPr)COMe$; $-CH_2N(iPr)SO_2Me$;

$C(O)NHC(Me)_2CH_2OMe$; $C(O)NHC(Me)_2CH_2OH$; $-CH_2CH_2C(Me)_2OH$;



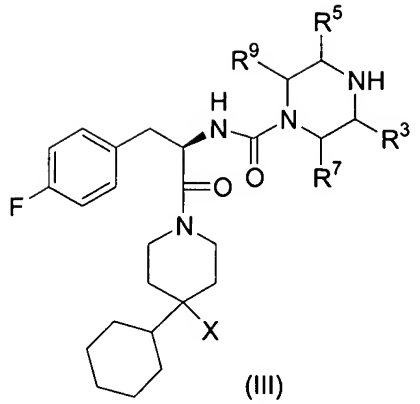


19. (original) The compound of Claim 18 wherein the carbon atom marked with * has the *R* configuration.

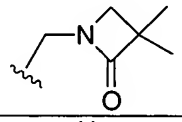
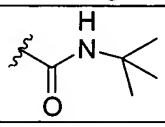
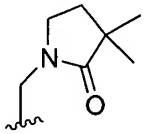
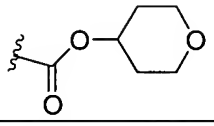
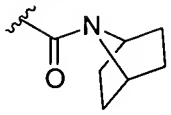
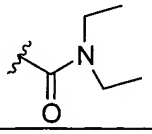
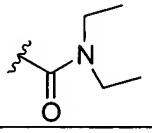
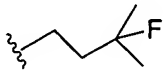
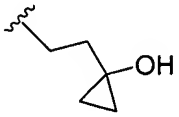
20. (original) The compound of Claim 18 wherein m is 1.

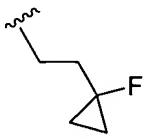
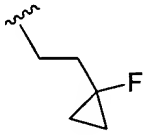
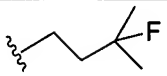
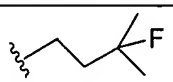
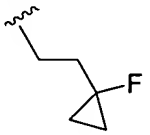
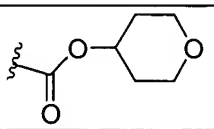
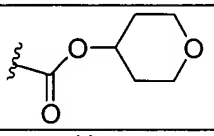
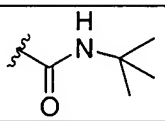
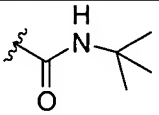
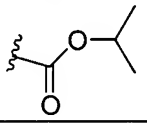
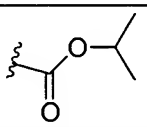
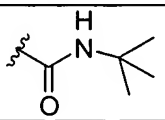
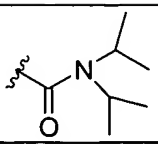
21. (original) The compound of Claim 18 wherein R^3 and R^5 are each independently hydrogen or C_{1-4} alkyl, and R^7 and R^9 are hydrogen.

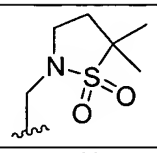
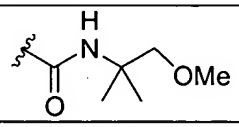
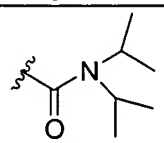
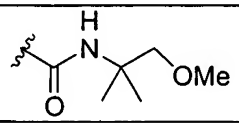
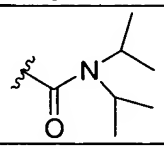
22. (original) The compound of Claim 19 of structural formula III selected from the group consisting of:



(III)

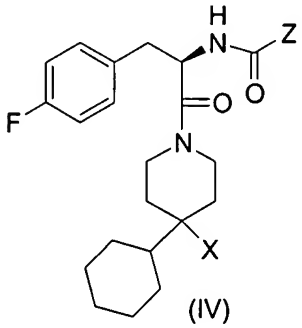
R^3	R^5	R^7	R^9	X
Me	Me	H	H	
Me	Me	H	H	
Me	Me	H	H	
Me	Me	H	H	
Me	Me	H	H	
Me	Me	H	H	
Et	Et	H	H	
Et	Et	H	H	
Et	Et	H	H	

Me	Me	H	H	
Et	Et	H	H	
Me	Me	H	H	
Et	Et	H	H	
Et	Et	H	H	
Me	Me	Me	Me	
Et	Et	H	H	
Me	Me	Me	Me	
Et	Et	H	H	
Me	Me	H	H	
Et	Et	H	H	
H	H	H	H	
Me	Me	H	H	

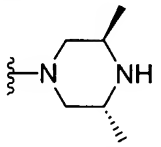
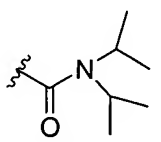
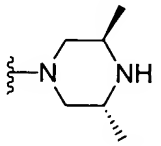
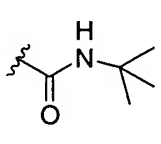
Me	Me	H	H	
Me	Me	H	H	
Et	Et	H	H	
Et	Et	H	H	
Me	Me	Me	Me	

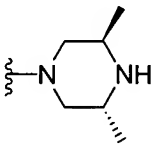
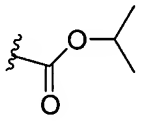
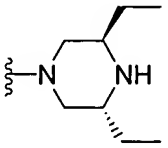
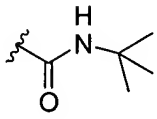
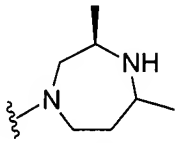
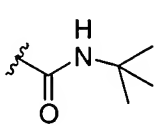
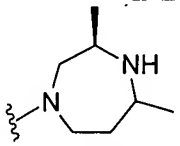
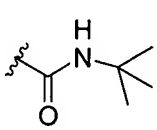
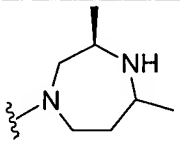
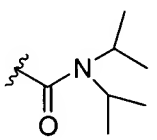
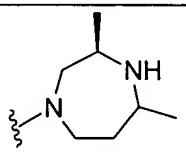
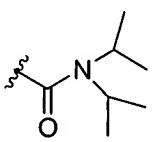
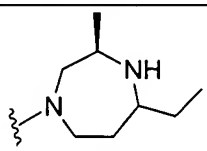
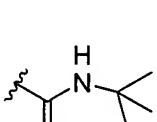
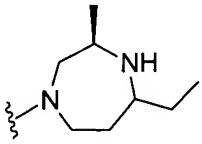
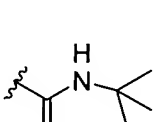
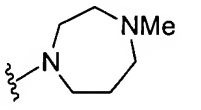
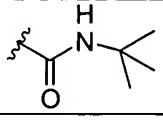
or a pharmaceutically acceptable salt thereof.

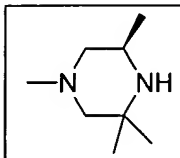
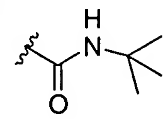
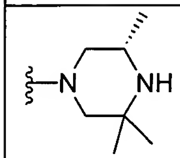
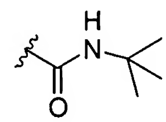
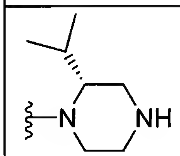
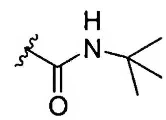
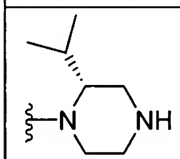
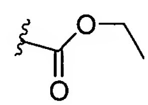
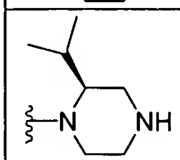
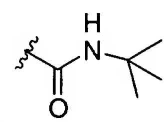
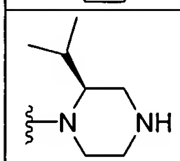
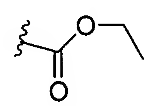
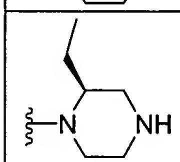
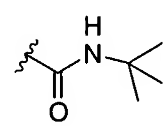
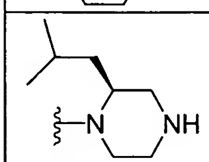
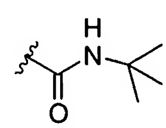
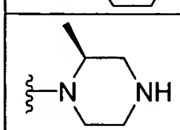
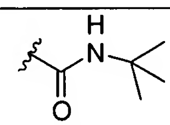
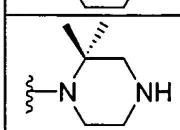
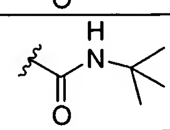
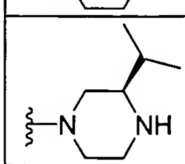
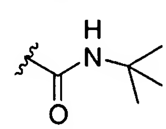
23. (original) The compound of Claim 19 of structural formula IV selected from the group consisting of:

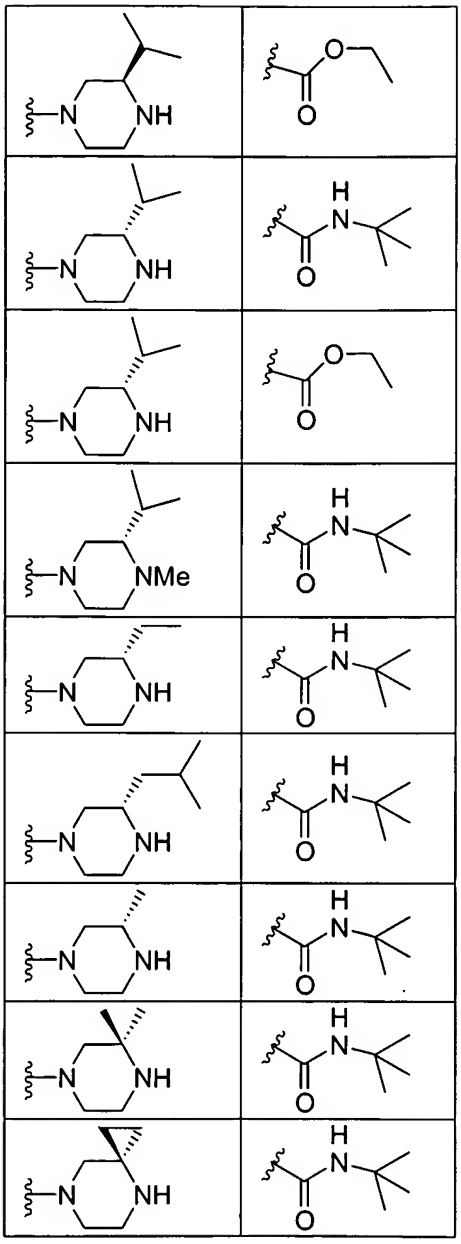


(IV)

Z	X
	
	

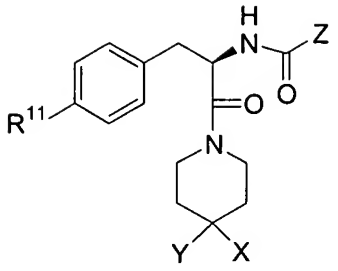
	
	
 D1	
 D2	
 D1	
 D2	
 D1	
 D2	
	

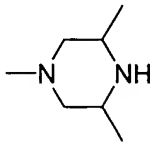
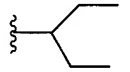
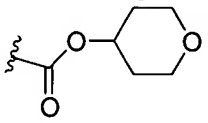
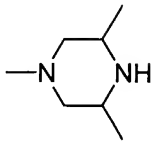
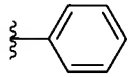
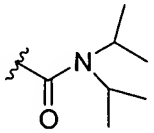
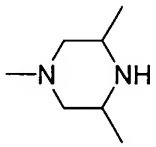
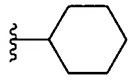
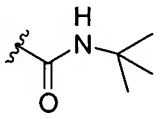
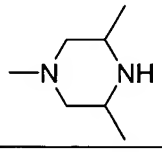
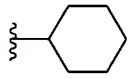
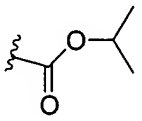
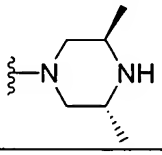
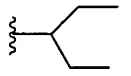
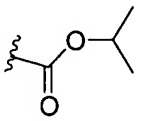
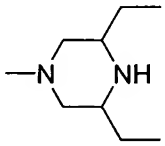
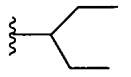
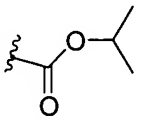
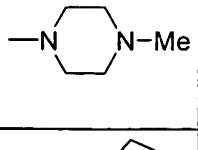
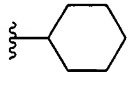
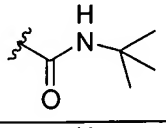
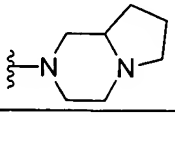
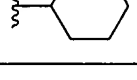
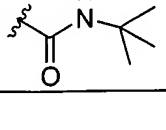


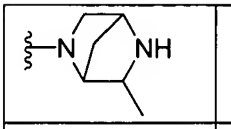
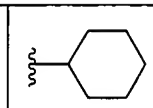
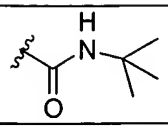
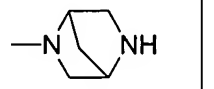
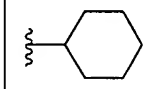
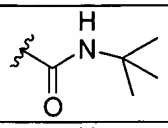
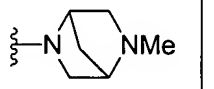
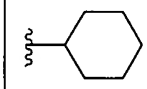
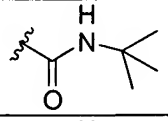
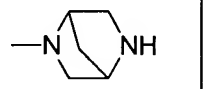
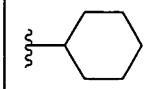
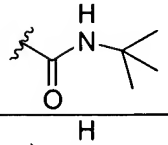
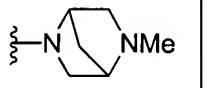
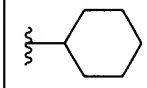
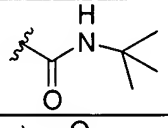
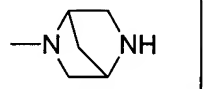
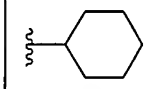
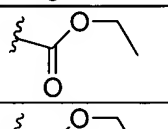
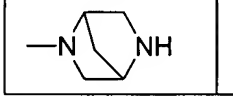
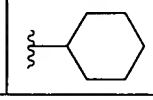
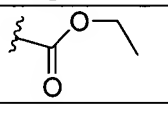
or a pharmaceutically acceptable salt thereof.

24. (original) The compound of Claim 19 of structural formula V selected from the group consisting of:



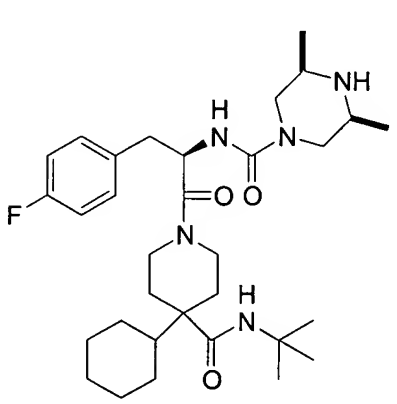
(V)

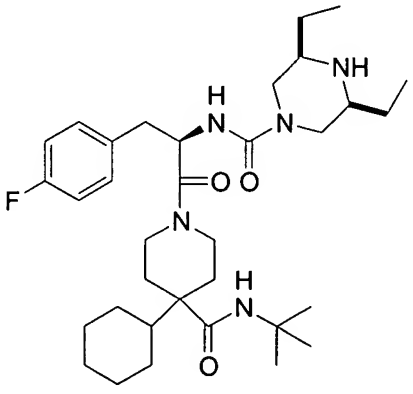
Z	Y	X	R11
			F
			F
			Cl
			Cl
			F
			F
			F
			F

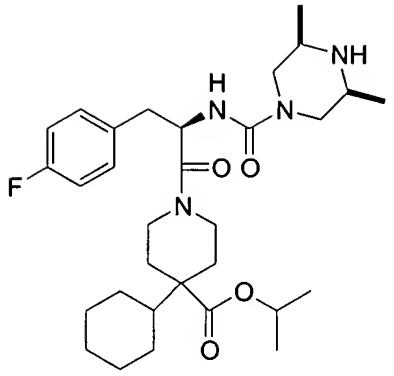
			F
			F
			F
			Cl
			Cl
			F
			Cl

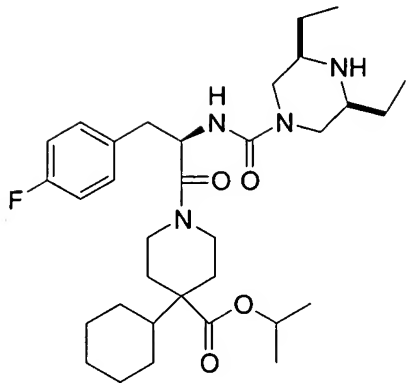
or a pharmaceutically acceptable salt thereof.

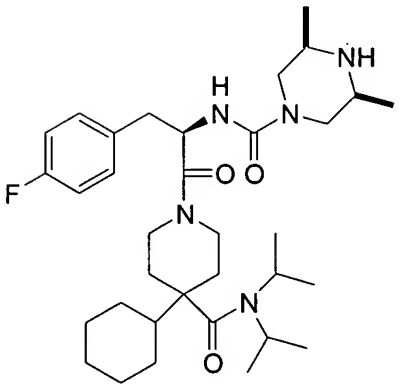
25. (original) The compound of Claim 19 selected from the group consisting of:

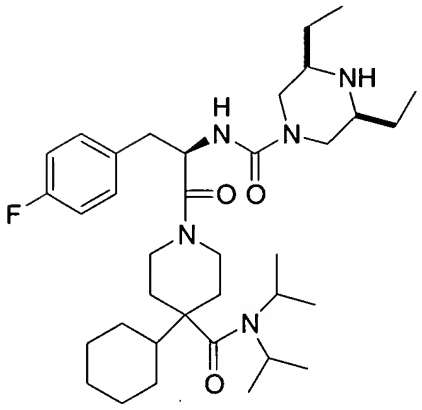


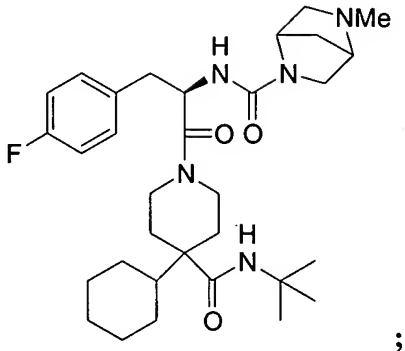










and  ;

or a pharmaceutically acceptable salt thereof.

26. (original) A method for the treatment, control, or prevention of disorders, diseases or conditions responsive to the activation of the melanocortin-4 receptor in a subject in need thereof which comprises administering to the subject a therapeutically or prophylactically effective amount of a compound according to Claim 1.

27. (currently amended) A method for the treatment, control, or prevention of obesity or diabetes mellitus in a subject in need thereof which comprises administering to the subject a therapeutically or prophylactically effective amount of a compound according to Claim 1.

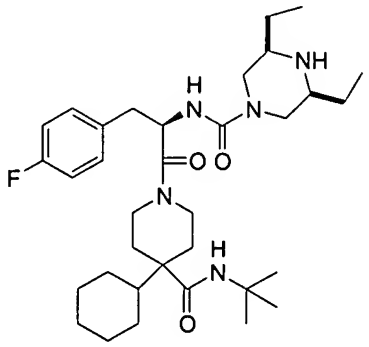
28. (canceled)

29. (original) A pharmaceutical composition which comprises a compound of Claim 1 and a pharmaceutically acceptable carrier.

30. (currently amended) The pharmaceutical composition of Claim 29 further comprising a second active ingredient selected from the group consisting of an insulin sensitizer, an insulin mimetic, a sulfonylurea, an α-glucosidase inhibitor, an HMG-CoA reductase inhibitor, an anti-obesity serotonergic agent, a β3 adrenoreceptor agonist, a neuropeptide Y1 or Y5 antagonist, a pancreatic lipase inhibitor, ~~and~~ a cannabinoid CB_1 receptor antagonist or inverse agonist~~.~~, a melanin-concentrating hormone receptor antagonist, a bombesin receptor subtype 3 agonist, a ghrelin receptor antagonist, and a dipeptidyl peptidase IV inhibitor.

31. (currently amended) A method of treating diabetes or obesity in a mammal in need thereof comprising administering to the mammal a therapeutically effective amount of a compound of Claim 1 in combination with an insulin sensitizer, an insulin mimetic, a sulfonylurea, an α-glucosidase inhibitor, an HMG-CoA reductase inhibitor, an anti-obesity serotonergic agent, a β3 adrenoreceptor agonist, a neuropeptide Y1 or Y5 antagonist, a pancreatic lipase inhibitor, ~~or~~ a cannabinoid CB_1 receptor antagonist or inverse agonist~~.~~, a melanin-concentrating hormone receptor antagonist, a bombesin receptor subtype 3 agonist, a ghrelin receptor antagonist or a dipeptidyl peptidase IV inhibitor.

32. (original) The compound of Claim 25 which is:



;

or a pharmaceutically acceptable salt thereof.

Claims 33 – 36 (canceled)

37. (original) The compound of Claim 25 wherein the pharmaceutically acceptable salt thereof is the hydrochloric acid salt.

38. (original) The compound of Claim 25 wherein the pharmaceutically acceptable salt thereof is the sulfuric acid salt.

39. (original) The compound of Claim 25 wherein the pharmaceutically acceptable salt thereof is the benzenesulfonic acid salt.

40. (currently amended) A method for the treatment or prevention of an obesity-related disorder selected from the group consisting of overeating, binge eating, and bulimia, hypertension, diabetes, elevated plasma insulin concentrations, insulin resistance, dyslipidemias, hyperlipidemia, endometrial, breast, prostate and colon cancer, osteoarthritis, obstructive sleep apnea, cholelithiasis, gallstones, heart disease, abnormal heart rhythms and arrythmias, myocardial infarction, congestive heart failure, coronary heart disease, sudden death, stroke, polycystic ovary disease, craniopharyngioma, the Prader-Willi Syndrome, Frohlich's syndrome, GH-deficient subjects, normal variant short stature, Turner's syndrome, metabolic syndrome, insulin resistance syndrome, sexual and reproductive dysfunction, infertility, hypogonadism, hirsutism, obesity-related gastro-esophageal reflux, Pickwickian syndrome, cardiovascular disorders, inflammation, systemic inflammation of the vasculature, arteriosclerosis, hypercholesterolemia, hyperuricaemia, lower back pain, gallbladder disease, gout, and kidney cancer, cardiac hypertrophy and left ventricular hypertrophy, in a mammal in need thereof which comprises administering to the mammal a therapeutically or prophylactically effective amount of a compound according to Claim 1.

Claims 41 - 46 (canceled)